

CLAIM AMENDMENT

1. (Currently Amended) A method for determining the activity range of a test compound against a secondary target that is not a serotonin reuptake transporter (SERT), which modulates the uptake of serotonin by a serotonin reuptake transporter (SERT), against a secondary target, said method comprising the steps of:

- (a) contacting a first nematode expressing a mutated *Caenorhabditis elegans* SERT (CeSERT) polypeptide with said compound, wherein said mutated CeSERT polypeptide has a reduced capacity to take up serotonin relative to wild-type , with said compound; and
 - (b) analyzing said nematode for an effect of said contacting on a defined behavior by said nematode, wherein a difference in said defined behavior by said nematode, relative to said defined behavior by a nematode expressing a mutated CeSERT polypeptide but not contacted with said compound, indicates said compound has a secondary target
 - (b) assaying a defined behavior of said first nematode; and
 - (c) comparing said defined behavior of said first nematode to the defined behavior of a second nematode not contacted with said compound, wherein a difference in said defined behavior between said first and second nematode indicates that said compound has a secondary target.

2. (Currently Amended) The method of either claim 1 or 12, wherein steps (a) and (b) to (e) are repeated using a nematode first and second nematodes selected from at least two a panel of nematodes expressing a mutated mutant CeSERT polypeptide polypeptides, wherein said

mutated mutant CeSERT polypeptide differs polypeptides differ from said mutated CeSERT polypeptide of step (a).

3. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said mutated CeSERT polypeptide is a complete loss-of-function.

4. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said method comprises a liquid locomotion assay.

5. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said defined behavior is movement, pharyngeal pumping, egg-laying, nose contraction, or defecation.

6. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said mutated CeSERT polypeptide is selected from the group consisting of a CeSERT(*n822*) polypeptide, a CeSERT(*n823*) polypeptide, and a CeSERT(*n3314*) polypeptide.

7. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said compound is from a class of compounds selected from the a group consisting of antidepressants, migraine medications, and anti-emetics.

8. (Original) The method of claim 7, wherein said antidepressant is a selective serotonin reuptake inhibitor.

9. (Original) The method of claim 7, wherein said antidepressant is a tricyclic antidepressant.

10. (Original) The method of claim 7, wherein said antidepressant is a monoamine oxidase inhibitor.

11. (Currently Amended) The method of ~~either~~ claim 1 or 12, wherein said test compound is administered at more than one concentration.

12. (Currently Amended) A method for identifying a test compound capable of modulating the uptake of serotonin by a serotonin reuptake transporter (SERT), wherein said test compound modulates the activity of a secondary target that is not a SERT, said method comprising the steps of:

(a) contacting a ~~first~~ nematode expressing a mutated *Caenorhabditis elegans* SERT (CeSERT) polypeptide with said compound, wherein said mutated CeSERT has a reduced capacity to take up serotonin relative to wild-type ~~, with said compound; and~~

(b) analyzing said nematode for an effect of said contacting on a defined behavior by said nematode, wherein a difference in said defined behavior by said nematode, relative to said defined behavior by a nematode expressing a mutated CeSERT polypeptide but not contacted with said compound, indicates said compound is capable of modulating the uptake of serotonin by a SERT by modulating the activity of a second target

(b) assaying a defined behavior of said first nematode; and
(c) comparing said defined behavior of said first nematode to the defined behavior of a second nematode expressing said mutated CeSERT polypeptide but not contacted with said compound, wherein a difference in said defined behavior between said first and second nematode indicates said compound is capable of modulating the uptake of serotonin by a serotonin reuptake transporter (SERT) by modulating the activity of a secondary target.

13. (New) The method of claim 12, wherein steps (a) and (b) are repeated using a nematode selected from at least two nematodes expressing a mutated CeSERT polypeptide, wherein said mutated CeSERT polypeptide differs from said mutated CeSERT polypeptide of step (a).

14. (New) The method of claim 12, wherein said mutated CeSERT polypeptide is a complete loss-of-function.

15. (New) The method of claim 12, wherein said method comprises a liquid locomotion assay.

16. (New) The method of claim 12, wherein said defined behavior is movement, pharyngeal pumping, egg-laying, nose contraction, or defecation.

17. (New) The method of claim 12, wherein said mutated CeSERT polypeptide is selected from the group consisting of a CeSERT(*n822*) polypeptide, a CeSERT(*n823*) polypeptide, and a CeSERT(*n3314*) polypeptide.

18. (New) The method of claim 12, wherein said compound is from a class of compounds selected from the group consisting of antidepressants, migraine medications, and anti-emetics.

19. (New) The method of claim 18, wherein said antidepressant is a selective serotonin reuptake inhibitor.

20. (New) The method of claim 18, wherein said antidepressant is a tricyclic antidepressant.

21. (New) The method of claim 18, wherein said antidepressant is a monoamine oxidase inhibitor.

22. (New) The method of claim 12, wherein said test compound is administered at more than one concentration.